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Short Communication

Easy prey: opportunistic predation of great fruit-eating bat (*Artibeus lituratus*) by ocelot (*Leopardus pardalis*) with ocular anomaly in Cerros de Amotape National Park, Tumbes, Peru

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Abstract

Despite their suitable size, bats (Chiroptera) represent rare to occasional prey for the ocelot (*Leopardus pardalis*), a generalist carnivorous feline with a wide geographic distribution. This work documents the first observed predation of *Artibeus lituratus*, a Neotropical fruit bat, by *Leopardus pardalis* from a mist net in Peru. The individual *L. pardalis* exhibited an ocular anomaly—the absence of the *tapetum lucidum* reflex in its left eye—which could have affected its night vision. This observation highlights plasticity in the hunting behavior of *L. pardalis*, allowing this individual to persist despite likely visual limitations. In addition, this case underscores the value of ecological monitoring in documenting unusual interactions between predators and prey.

Key words: Carnivora, Chiroptera, mammals, mist nets, Pacific tropical forest

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Introduction

Tropical ecosystems are known for their high biodiversity and the complex trophic interactions that sustain their structure and functionality (Cabrera and Willink 1980; Patterson et al. 1992). In these ecosystems, carnivores frequently display flexible feeding habits that allow them to adapt to changing environmental conditions, competition dynamics, and resource availability (Cruz et al. 2022). The ocelot, *Leopardus pardalis* (Linnaeus, 1758), is among the most flexible felids in terms of prey size and taxonomic diversity, allowing it to adapt to fragmented and anthropogenically modified ecosystems (Bianchi et al. 2010; Cruz et al. 2022). A medium-sized feline, *L. pardalis* is widely distributed from the southern United States to northern Argentina (IUCN 2024). It is a generalist carnivore that consumes a variety of prey, including small mammals, birds, reptiles, fish, and large rodents (Emmons 1988; Murray and Gardner 1997; Sunquist and Sunquist 2009).

Despite their suitable size, prevalence, and high diversity in Neotropical forests, bats do not constitute a significant portion of *L. pardalis*' diet. This pattern is consistent with the species' terrestrial foraging habits and the low prevalence of birds and mouse opossums (*Marmosa* sp.) in the diet of individuals found in tall or structurally complex forests (De Villa et al. 2002; Wang 2002).

Instead, the diet is dominated by Rodentia, Reptilia, Primates, Xenarthra, and Artiodactyla (De Villa et al. 2002; Bianchi and Mendes 2007; Abreu et al. 2008; Bianchi et al. 2010; Metz et al. 2024). Despite the dominance of terrestrial prey in the ocelot diet, reports of bat consumption by *L. pardalis* are geographically extensive, with evidence reported from Peru, Costa Rica, Ecuador, Panama, and Mexico (Emmons 1987; Chinchilla 1997; Moreno et al. 2006; Tinoco and Camacho 2015; Contreras-Moreno et al. 2019; Macas-Pogo et al. 2023). The genus *Artibeus*, belonging to the subfamily Stenodermatinae, is the most commonly reported taxon in ocelot stomach contents (Emmons 1987; Chinchilla 1997; Tinoco and Camacho 2015). This frugivorous genus comprises 13 species that range in weight from 30 to 86 g (Morrison 1980).

Dietary plasticity increases species resilience in dynamic ecosystems, allowing organisms to adapt to changing environments (Hawlena et al. 2011). While increased prey variability in mesopredators is well documented in anthropogenically altered ecosystems or following the removal of top predators, the impact of physical anomalies on prey selection is less well understood (Moreno et al. 2006). This is despite the high prevalence of injuries in natural systems, with most individuals sustaining multiple injuries throughout their lifetime (Rennolds and Bely 2023). In other taxa, injuries and physical anomalies, including ocular ones, can significantly influence hunting ability and behavior, even altering prey selection (Walls 1942; Ewer 1998; Corsi et al. 2022). These effects can include selection for smaller prey, reduced or altered predator avoidance, and increased dietary breadth (Rennolds and Bely 2023). Although this phenomenon has been understudied, it represents an important area of interest for understanding how felines survive periods of injury and how such alterations can influence their interspecific interactions. Throughout this text, we define predation as the search, detection, attack, and killing of live prey, independent of the subsequent consumption of the prey item (Curio 1976; Rouviere and Montgomery 2025).

Methods

In conjunction with a regional survey of bat habitat use, mist netting was conducted every night from 11–18 January 2024 in the sector of “El Caucho” in Cerros de Amotape National Park (3°49'1.08"S, 80°16'5.70"W, 417 m; Fig. 1). This protected area, located in the department of Tumbes, Peru, hosts high biodiversity, including endemic and migratory species (INRENA 2001; SERNANP 2015). The park is considered a critical area for the conservation of threatened species and provides unique habitats for a variety of mammals, including bats and felines (INRENA 2001; SERNANP 2015). Four mist nets were installed at 18:30, with the lowest shelf positioned at least 50 cm above ground to reduce opportunistic predation on animals captured in mist nets, following the protocol of de Moura et al. (2023). Nets were checked continuously by three biologists; however, due to high capture rates, the interval between net checks ranged from 15 to 35 minutes.

Results

On 15 January 2024, at 19:20 h, an ocelot was observed near the mist nets. This represented the third individual recorded along a 3 km road segment across five survey nights. All three individuals were visually distinguishable by size and

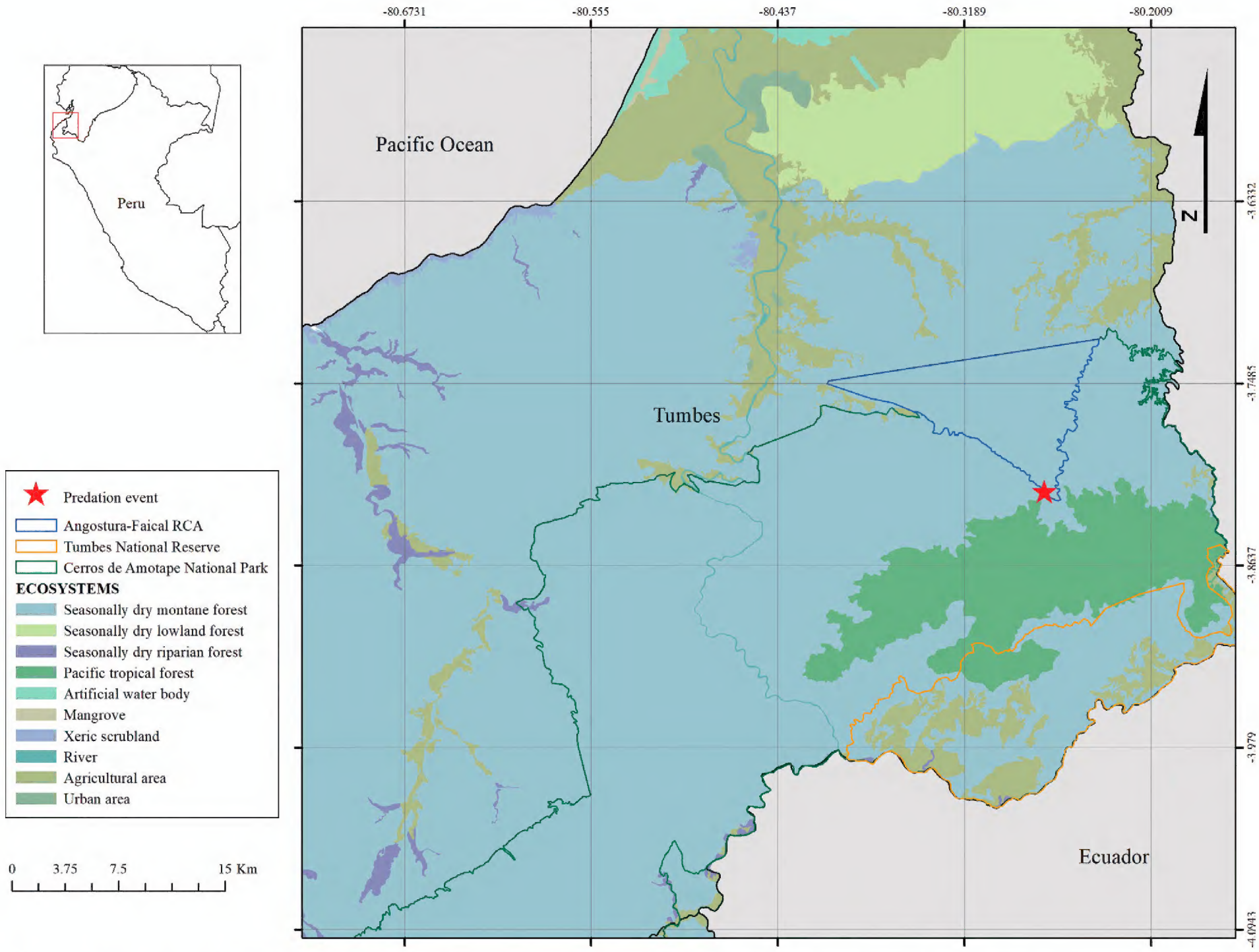

Figure 1. Location of the observed predation event in Cerros de Amotape National Park, Tumbes, Peru.

coloration. At approximately 23:30 h, during a systematic net check, an ocelot was observed attacking a bat caught in one of the nets. It was not determined whether this was the same individual observed at 19:20 h; however, body size and coloration were consistent between the two sightings. The ocelot attempted to drag the bat from the net but failed due to the bat's heavy entanglement (Fig. 2A). The individual retreated when approached but returned within 3 minutes despite human presence and the use of artificial lights. It did not attempt to remove the bat upon its return. During observation of the event, the left eye of the feline did not reflect light, indicating ocular damage or degeneration.

The bat, an adult female *Artibeus lituratus* weighing 92 g and with a forearm length of 71 mm, was found dead and showed multiple injuries, mainly on the anterior part of the body (Fig. 2B).

Discussion

The observation of bat predation by *L. pardalis* in mist nets highlights plasticity in this species' hunting behavior, consistent with its opportunistic predatory nature. While the ocelot's diet primarily consists of small nocturnal terrestrial mammals, especially rodents (Moreno et al. 2006), it also includes a wide range of prey, including birds, amphibians, reptiles, fish, and insects (De Villa et al. 2002). Consumption of bats by this species could increase the likelihood of ra-

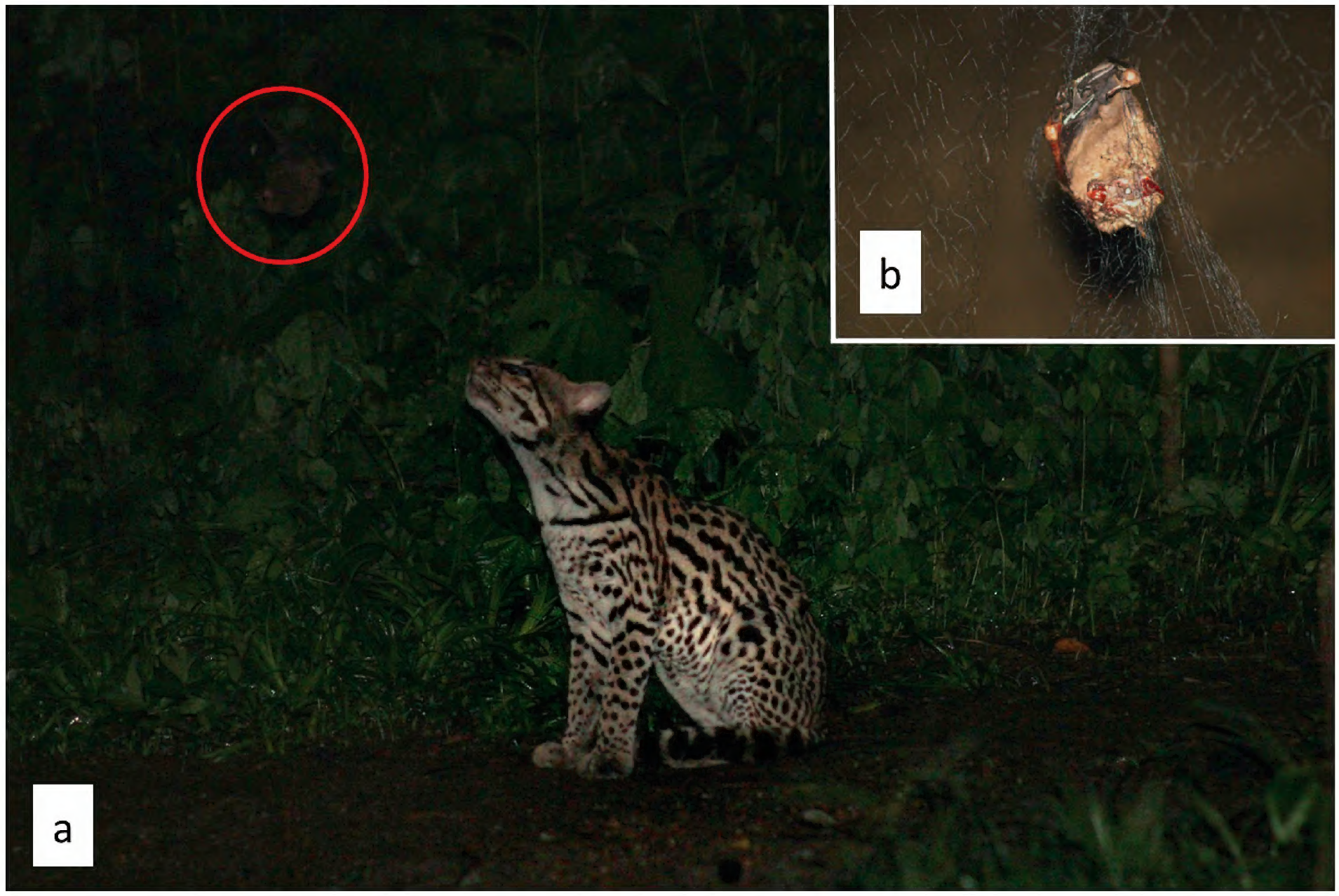

Figure 2. Ocelot predation on *Artibeus lituratus*. **A.** Ocelot observing the bat in the mist net after the attack; **B.** Dead bat visible in the upper right corner of the net.

bies transmission or novel disease spillover events (Díaz et al. 2025). Predation incidents in mist nets are rare and seldom documented, especially in Peru, where no prior cases have been reported (de Moura et al. 2023). Similar opportunistic predation events have been recorded in other regions involving different predators, such as raptors (de Moura et al. 2023), marsupials (Gazarini et al. 2008; Faria 2014; de Moura et al. 2023), and other feline species (Rocha-Mendes and Bianconi 2009; Breviglieri and Pedro 2010). Although this predation event did not result in prey consumption, it included all five predation stages defined by Rouviere and Montgomery (2025): encounter, interaction, attack, capture, and death.

This study constitutes one of the few reported cases of *A. lituratus* predation in mist nets (de Moura et al. 2023). As one of the largest species in the genus *Artibeus*, *A. lituratus* can weigh 50–86 g and has a forearm length of 65–78 mm (Davis 1984; Tirira 2017). Its distribution ranges from northeastern Mexico to northern Argentina, and its diet is primarily based on fruits, although it also includes flowers, nectar, and insects (Parolin et al. 2016; Laurindo and Vizentin-Bugoni 2020).

The lack of the characteristic reflection associated with the *tapetum lucidum* (Fig. 3A, B) is uncommon in field studies, particularly in wild felines. The *tapetum lucidum* is a crucial adaptation that enhances nocturnal vision by maximizing the ability to detect prey under low-light conditions (Corsi et al. 2022). Its absence may have limited this individual's visual performance, potentially affecting hunting success on nocturnal rodents, a primary prey source for this

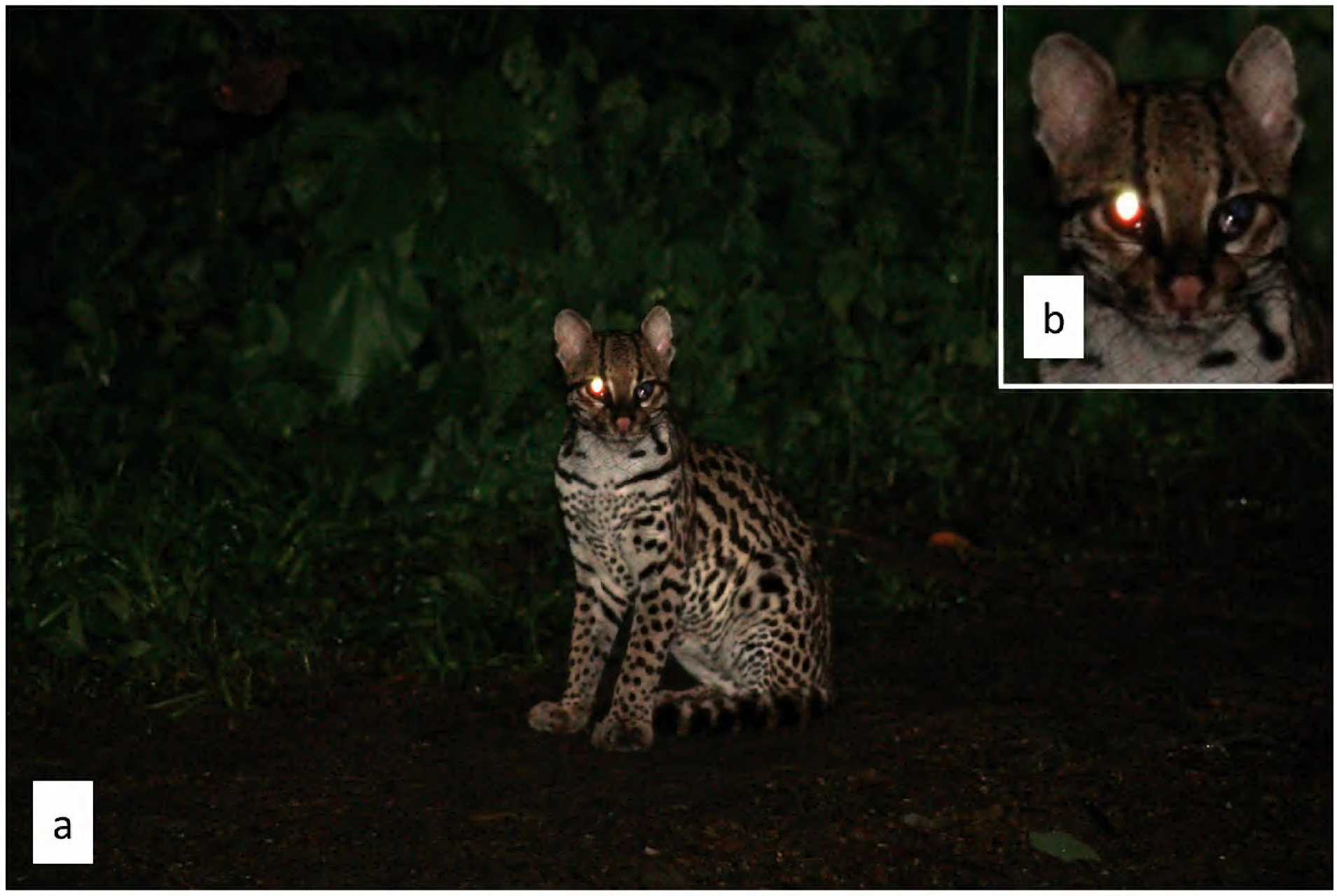

Figure 3. Ocelot with ocular anomaly. **A.** Frontal view of the ocelot under artificial light; **B.** Close-up of the left eye showing the absence of *tapetum lucidum* reflection.

species. This limitation may correlate with increased interest in alternative prey sources (i.e., bats in mist nets) and reduced predation avoidance (i.e., willingness to return to the area despite human activity) displayed by this individual compared with others observed in the area. However, further studies are needed to determine whether such behavioral shifts are consistently associated with visual impairments.

The extent, character, and cause of the observed reduction in tapetal sheen cannot be determined without further examination and clinical analysis. Proximal causes rarely include an atypical *tapetum lucidum* and more commonly indicate acute inflammation, lens displacement (luxation), cellular infiltrates, or edema, among other conditions (Glaze 2015). These conditions could result from blunt trauma, inflammation due to infection, or congenital defects (Chang and Carter 2009). Ocular inflammation can also result from *Toxoplasma gondii* infection, severe feline herpesvirus complications, or fungal or bacterial endophthalmitis (Colitz 2005). The individual appeared to be in good body condition, suggesting that behavioral adaptations may be sufficient for survival despite the observed high conspecific density and physical abnormality. Although this is a single-event observation, it provides valuable insight into the behavioral plasticity and ecological adaptability of wild ocelots.

This work represents the first documented record of predation on *A. lituratus* by a wild feline in Peru and the first reported case of opportunistic predation in mist nets by *L. pardalis*.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

Fieldwork was conducted under permits RD-060-2023-SERNANP-DGAN and Northern Arizona University IACUC Protocol 23-001- Landscape Genomics in Dry Forest Bats; efforts were made to minimize stress and predation risk during mist-netting.

Use of AI

No use of AI was reported.

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Author contributions

LACE: Conceptualization, field investigation, visualization, writing-original draft. MJH: Conceptualization, field investigation, funding acquisition, supervision, writing-review & editing.

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Data availability

All of the data that support the findings of this study are available in the main text.

References

Abreu K, Moro-Rios R, Silva-Pereira J, Miranda J, Jablonski E, Passos F (2008) Feeding habits of ocelot (*Leopardus pardalis*) in Southern Brazil. Mammalian Biology 73(5): 407–411. https://doi.org/10.1016/j.mambio.2007.07.004

Bianchi RDC, Mendes SL (2007) Ocelot (*Leopardus pardalis*) predation on primates in Caratinga Biological Station, southeast Brazil. American Journal of Primatology 69(10): 1173–1178. https://doi.org/10.1002/ajp.20415

Bianchi RDC, Mendes SL, Júnior PDM (2010) Food habits of the ocelot, *Leopardus pardalis*, in two areas in southeast Brazil. Studies on Neotropical Fauna and Environment 45(3): 111–119. https://doi.org/10.1080/01650521.2010.514791

Breviglieri CPB, Pedro WA (2010) Predação de morcegos (Phyllostomidae) pela cuíca d'água *Chironectes minimus* (Zimmermann, 1780) (Didelphimorphia, Didelphidae) e uma breve revisão de predação em Chiroptera. Chiroptera Neotropical 16(2): 732–739.

Cabrera A, Willink A (1980) Biogeografía de América Latina (2da Edn.). Serie de Biología, secretaria general de la Organización de los Estados Americanos, Washington D. C., 120 pp.

Chang J, Carter R (2009) Feline uveitis: A review of its causes, diagnosis, and treatment.

Chinchilla FA (1997) La dieta del jaguar (*Panthera onca*), el puma (*Felis concolor*) y el manigordo (*Felis pardalis*) (Carnivora: Felidae) en el Parque Nacional Corcovado, Costa Rica. Revista de Biología Tropical 45(3): 1223–1229. https://revistas.ucr.ac.cr/index.php/rbt/article/view/21416

Colitz CM (2005) Feline uveitis: Diagnosis and treatment. Clinical Techniques in Small Animal Practice 20(2): 117–120. https://doi.org/10.1053/j.ctsap.2004.12.016

Contreras-Moreno FM, Simá-Pantí D, Zúñiga-Morales JA, Coutiño-Cal Y, Mayor C, Borges-Zapata JY, Serrano-Mac-Gregor I (2019) Registro fotográfico de un murciélago capturado por *Leopardus pardalis* (Carnivora: Felidae) en la Reserva de la Biosfera Calakmul, México. Mammalogy notes 5(2): 6–9. https://doi.org/10.47603/mano-vol5n2.6-9

Corsi F, Guandalini A, Rossi JL, Ben-Shlomo G, Montiani-Ferreira F, Moore BA (2022) Ophthalmology of Felidae: Cats. In: Montiani-Ferreira F, Moore BA, Ben-Shlomo G (Eds) Wild Exotic Animal Ophthalmology. Springer, Cham, 155–180. https://doi.org/10.1007/978-3-030-81273-7_10

Cruz LR, Muylaert RL, Galetti M, Pires MM (2022) The geography of diet variation in Neotropical Carnivora. Mammal Review 52(1): 112–128. https://doi.org/10.1111/mam.12266

Curio E (1976) Prey Recognition. The Ethology of Predation. Springer, Berlin, Heidelberg, 85–112. https://doi.org/10.1007/978-3-642-81028-2_4

Davis WB (1984) Review of the large fruit-eating bats of the *Artibeus "lituratus"* complex (Chiroptera: Phyllostomidae) in Middle America. Occasional Papers The Museum Texas Tech University 93: 1–16. https://doi.org/10.5962/bhl.title.156552

de Moura GW, Mustin K, Pinto FAS, Sineiro SCA, Xavier BS, Costa LM, Esbérard CEL, Barufatti A, Carvalho WD (2023) Global review and guidelines to avoid opportunistic predation of birds and bats in mist nets. Ecology and Evolution 13(8): e10390. https://doi.org/10.1002/ece3.10390

De Villa MA, Martínez E, López C (2002) Ocelot (*Leopardus pardalis*) food habits in a tropical deciduous forest of Jalisco Mexico. American Midland Naturalist 148(1): 146–154. https://doi.org/10.1674/0003-0031(2002)148[0146:OLPFHI]2.0.CO;2

Díaz EA, Sáenz C, Zug R (2025) Bat predation by domestic cats: A neglected rabies-risk in Ecuador. One Health 20: e100958. https://doi.org/10.1016/j.onehlt.2024.100958

Emmons L (1987) Comparative feeding ecology of Felids in a Neotropical Rainforest. Behavioral Ecology and Sociobiology 20(4): 271–283. https://doi.org/10.1007/BF00292180

Emmons L (1988) A field study of ocelots (*Felis pardalis*) in Peru. Revue d'Écologie 43(2): 133–157. https://doi.org/10.3406/revec.1988.5418 [La Terre et La Vie] https://doi.org/10.3406/revec.1988.5418

Ewer RF (1998) The special senses. In: Ewer RF (Ed.) The Carnivores. Cornell University Press, New York, 120–138.

Faria MB (2014) Opportunistic Predation of *Artibeus lituratus* (Chiroptera, Phyllostomidae) by the Marsupial *Marmosops incanus* (Didelphidae, Didelphimorphia) in the Atlantic Forest, Minas Gerais. Chiroptera Neotropical 20(2): 1297–1300.

Gazarini J, Brito JEC, Bernardi IP (2008) Predações oportunísticas de morcegos por *Didelphis albiventris* no sul do Brasil. Chiroptera Neotropical 14(2): 408–411.

Glaze MB (2015) Lack of purrception: vision loss in the clear feline eye.

Hawlena D, Hughes KM, Schmitz OJ (2011) Trophic trait plasticity in response to changes in resource availability and predation risk. Functional Ecology 25(6): 1223–1231. https://doi.org/10.1111/j.1365-2435.2011.01891.x

INRENA (2001) Plan Maestro del Parque Nacional Cerros de Amotape, Tumbes – Perú. Tumbes.

IUCN (2024) Small Cat Report.

Laurindo RDS, Vizentin-Bugoni J (2020) Diversity of fruits in *Artibeus lituratus* diet in urban and natural habitats in Brazil: A review. Journal of Tropical Ecology 36(2): 65–71. https://doi.org/10.1017/S0266467419000373

Macas-Pogo P, Valenzuela EM, Arévalo-Serrano G (2023) Activity pattern and predatory behaviour of the ocelot (*Leopardus pardalis*)(Carnivora, Felidae) in mineral licks of the Yasuni National Park, Ecuador. Neotropical Biology and Conservation 18(1): 1–11. https://doi.org/10.3897/neotropical.18.e95027

Metz L, Monteiro-Filho ELDA, Fusco-Costa R, D'Bastiani E, Padial AA (2024) Unravelling the trophic guild structure of Neotropical Carnivora: Diet specializations, spatial variation and phylogenetic drivers. Mammal Review 54(1): 13–29. https://doi.org/10.1111/mam.12326

Moreno RS, Kays RW, Samudio JR (2006) Competitive release in diets of ocelot (*Leopardus pardalis*) and puma (*Puma concolor*) after jaguar (*Panthera onca*) decline. Journal of Mammalogy 87(4): 808–816. https://doi.org/10.1644/05-MAMM-A-360R2.1

Morrison DW (1980) Foraging and day-roosting dynamics of canopy fruit-bats in Panama. Journal of Mammalogy 61(1): 20–29. https://doi.org/10.2307/1379953

Murray JL, Gardner GL (1997) *Leopardus pardalis*. Mammalian Species 548: 1–10. https://doi.org/10.2307/3504082

Parolin LC, Bianconi GV, Mikich SB (2016) Consistency in fruit preferences across the geographical range of the frugivorous bats *Artibeus*, *Carollia* and *Sturnira* (Chiroptera). Iheringia. Série Zoologia 106: e2016010. https://doi.org/10.1590/1678-4766e2016010

Patterson BD, Pacheco V, Ashley M (1992) On the origins of the western slope region of endemism: Systematics of fig-eating bats, genus *Artibeus*. Memorias del Museo de Historia Natural, Universidad Nacional Mayor de San Marcos 21: 189–205. https://museohn.unmsm.edu.pe/docs/Memorias/Memoria%20N%C2%B0%2021.pdf

Rennolds CW, Bely AE (2023) Integrative biology of injury in animals. Biological Reviews of the Cambridge Philosophical Society 98(1): 34–62. https://doi.org/10.1111/brv.12894

Rocha-Mendes F, Bianconi G (2009) Opportunistic predatory behavior of margay, *Leopardus wiedii* (Schinz, 1821), in Brazil. Mammalia 73(2): 151–152. https://doi.org/10.1515/MAMM.2009.017

Rouviere A, Montgomery RA (2025) From encounter to death: Which stages of predation are considered within livestock depredation research?. Biological Conservation 309: e111330. https://doi.org/10.1016/j.biocon.2025.111330

SERNANP (2015) Plan Maestro del Parque Nacional Cerros de Amotape 2012–2017. Primera edición. Lima.

Sunquist ME, Sunquist FC (2009) Family Felidae (Cats). In: Wilson DE, Mittermeier RA (Eds) Handbook of the Mammals of the World (Vol. 1). Carnivores. Lynx Ediciones, Barcelona, 54–169.

Tinoco N, Camacho A (2015) Records of bats predated by *Leopardus pardalis* (Carnivora: Felidae) in Eastern Ecuador. Revista Biodiversidad Neotropical 5(2): 105–110. https://doi.org/10.18636/bioneotropical.v5i2.230

Tirira DG (2017) Guía de campo de los mamíferos del Ecuador (2da Edn.). Ediciones Murciélago Blanco. Publicación especial sobre los mamíferos del Ecuador 11, Quito, 600 pp.

Walls GL (1942) The vertebrate eye and its adaptive radiation. Cranbrook Institute of Science, Bloomfield Hills, Michigan, 785 pp. https://doi.org/10.5962/bhl.title.7369

Wang E (2002) Diets of ocelots (*Leopardus pardalis*), margays (*L. wiedii*), and oncillas (*L. tigrinus*) in the Atlantic rainforest in southeast Brazil. Studies on Neotropical Fauna and Environment 37(3): 207–212. https://doi.org/10.1076/snfe.37.3.207.8564